



Product Specification

MODEL NO.:JFC4KPWCJ3ZD

Product version: V1.0

Customer: Common Model

APPROVED BY

SIGNATURE

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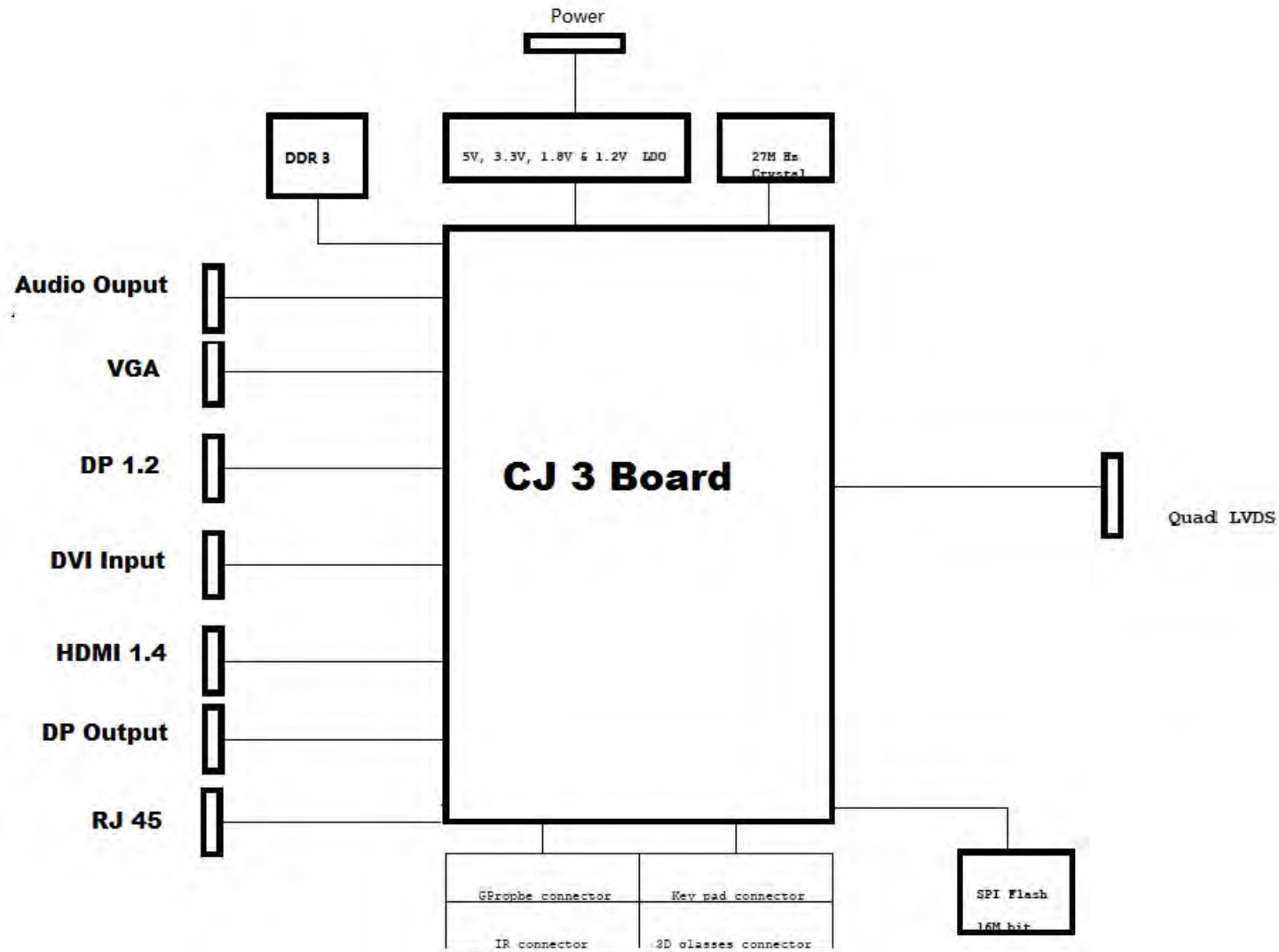
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Note

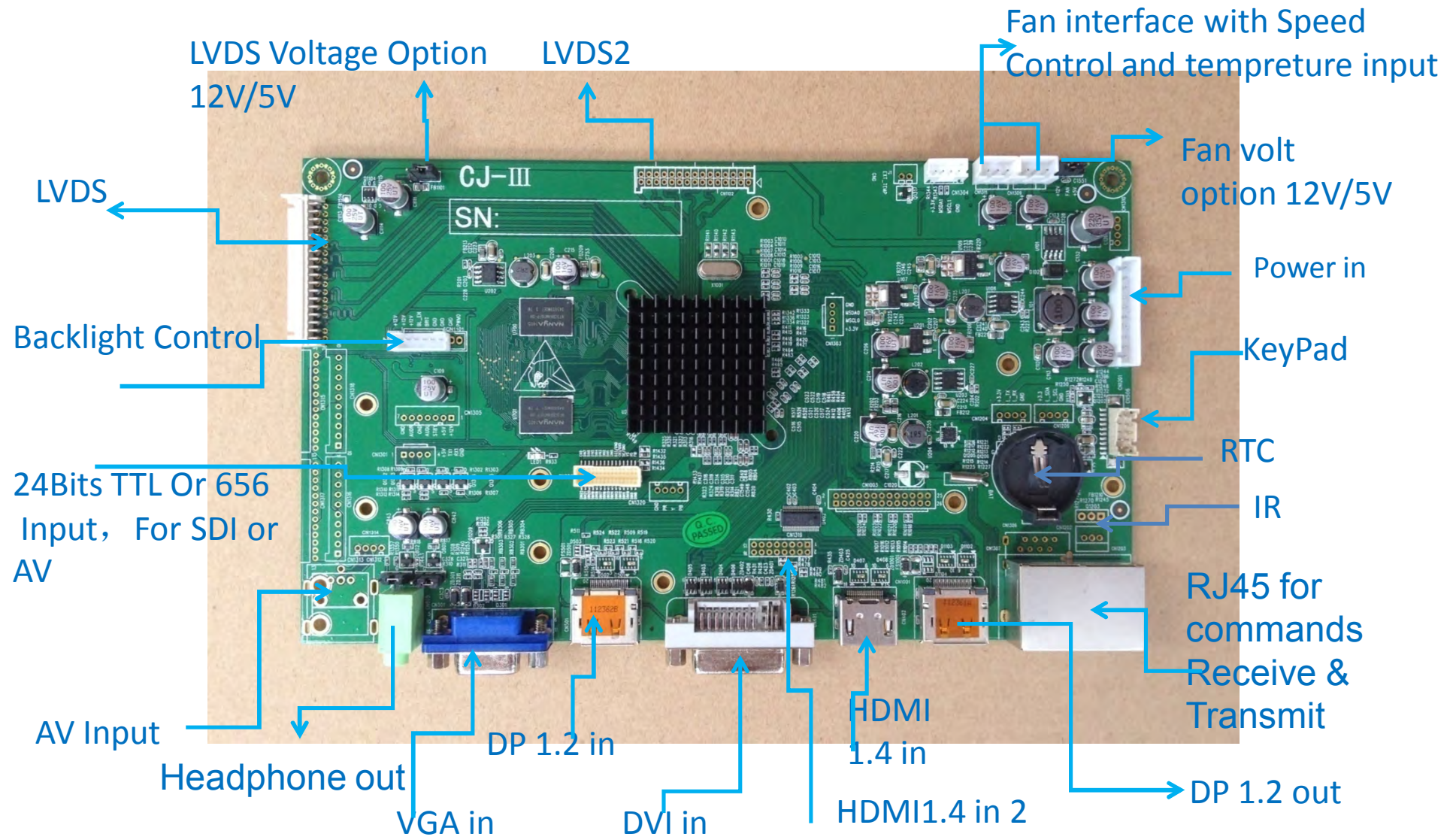
1. Be aware of product version.
2. Please contact with JFC when you need
any parameters unavailable in this manual

Approved By	Checked By	Prepared By
SIM ZHANG	CHEN SHI	FU YAN QIANG

System Block Diagram

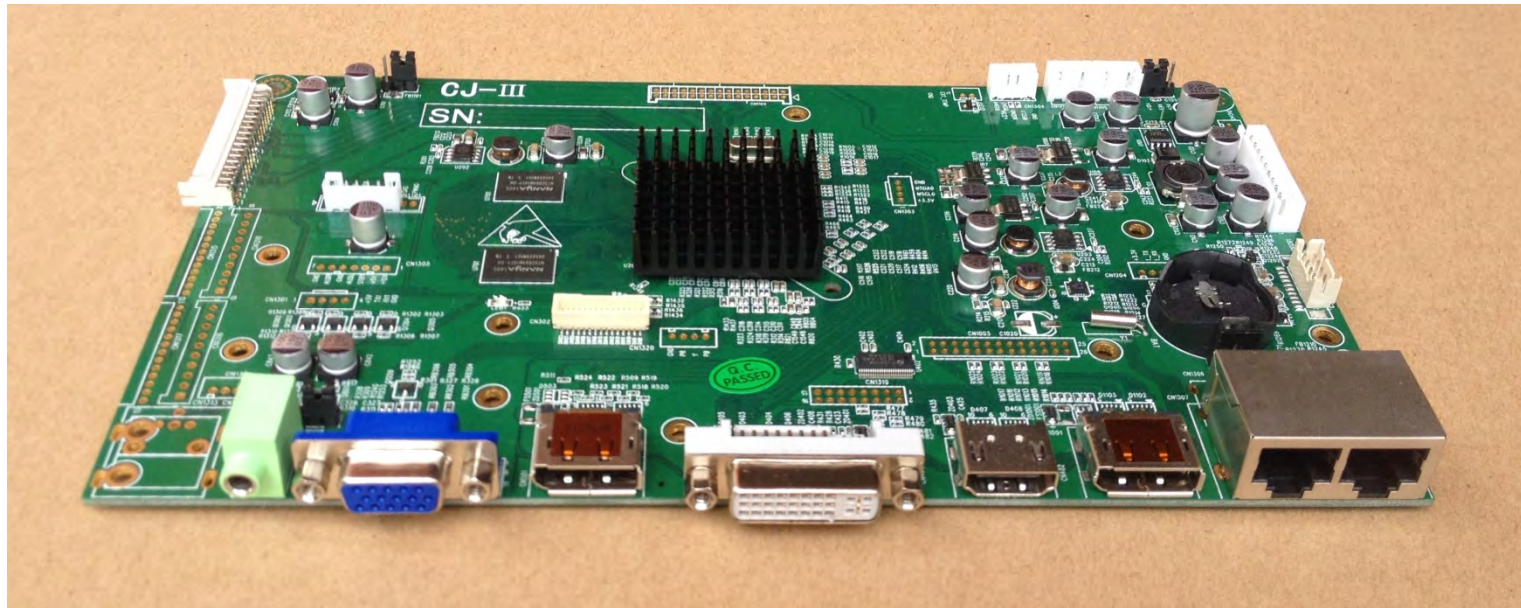


System block diagram

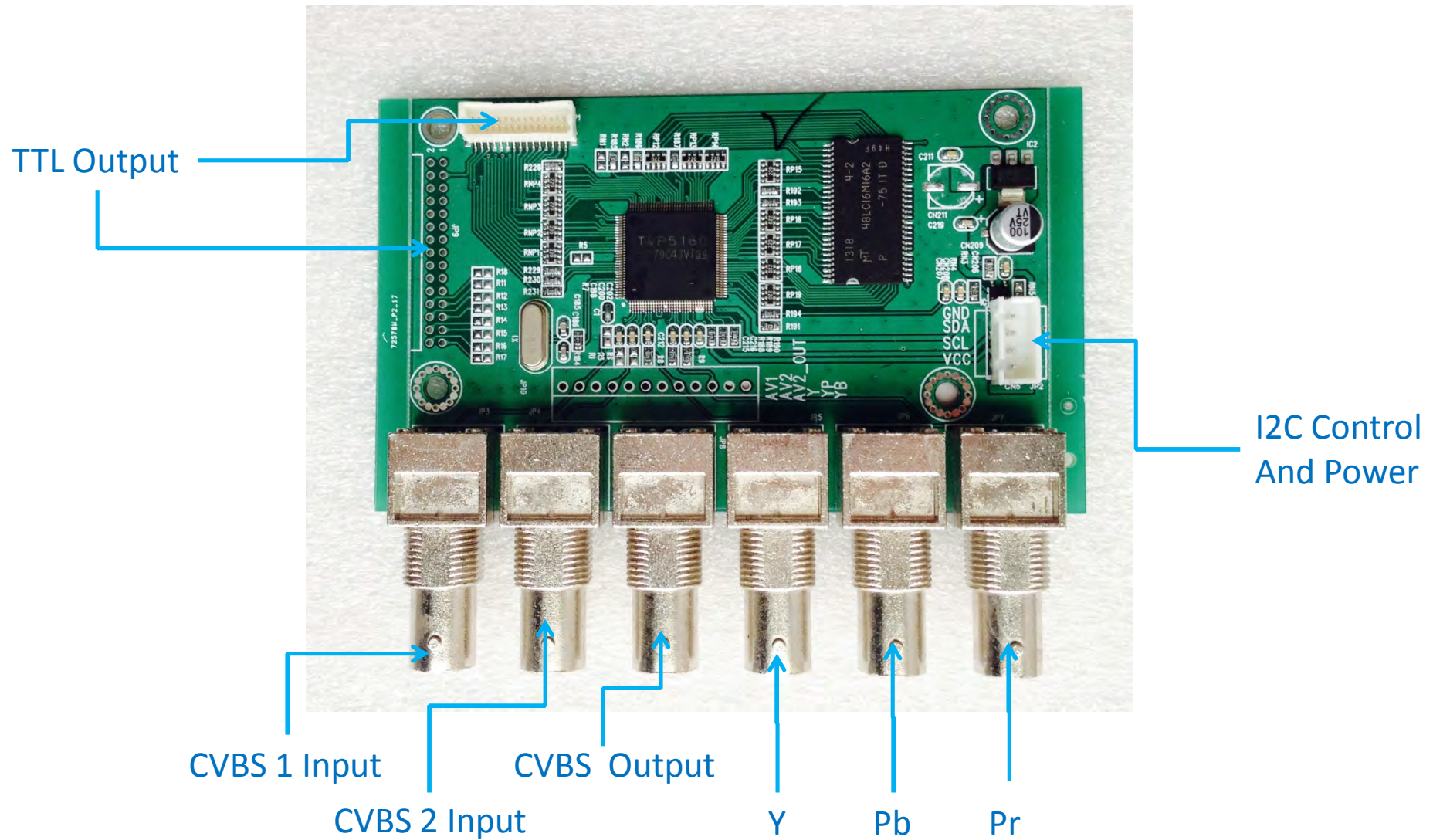




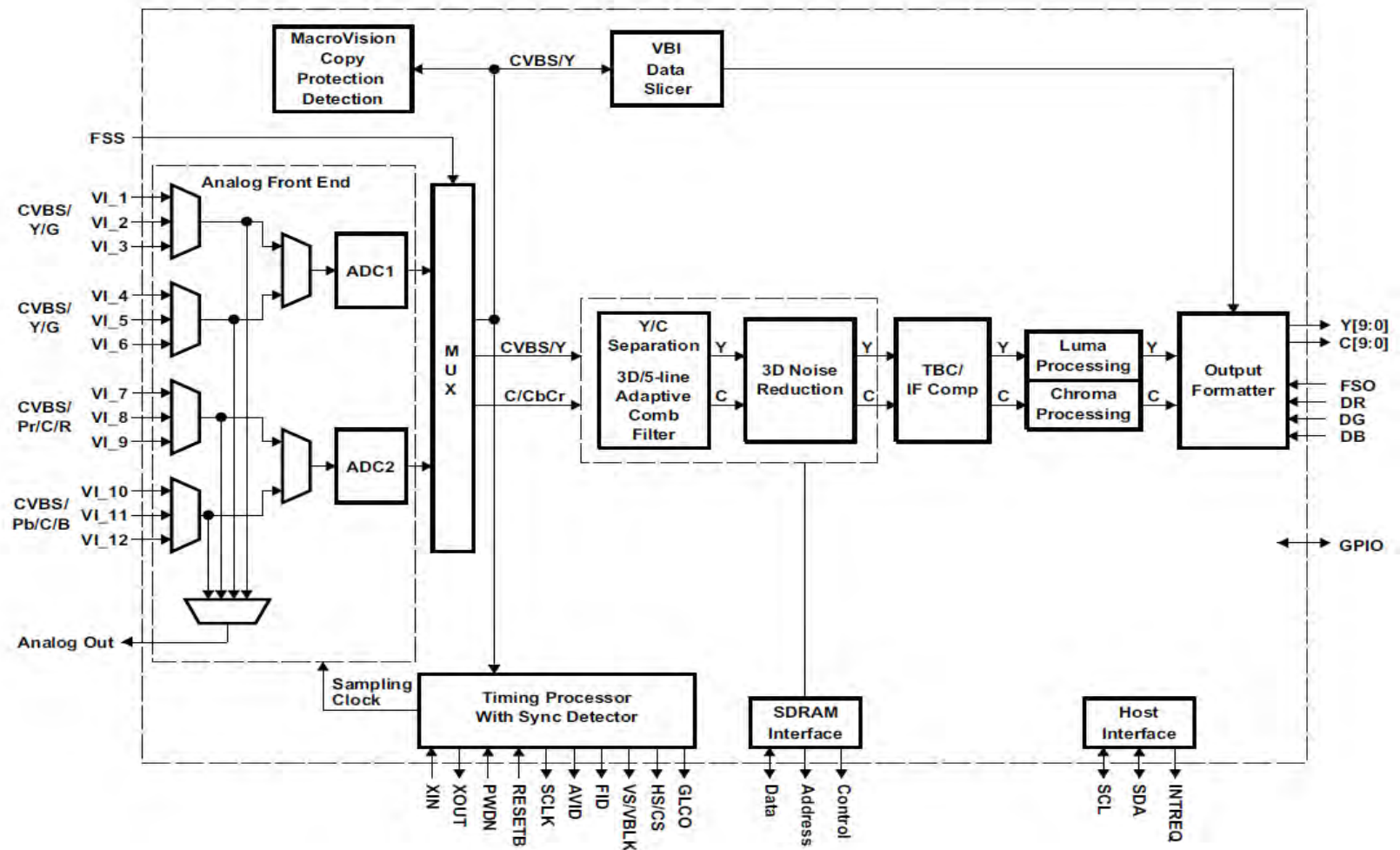
Interface overview



CVBS Board

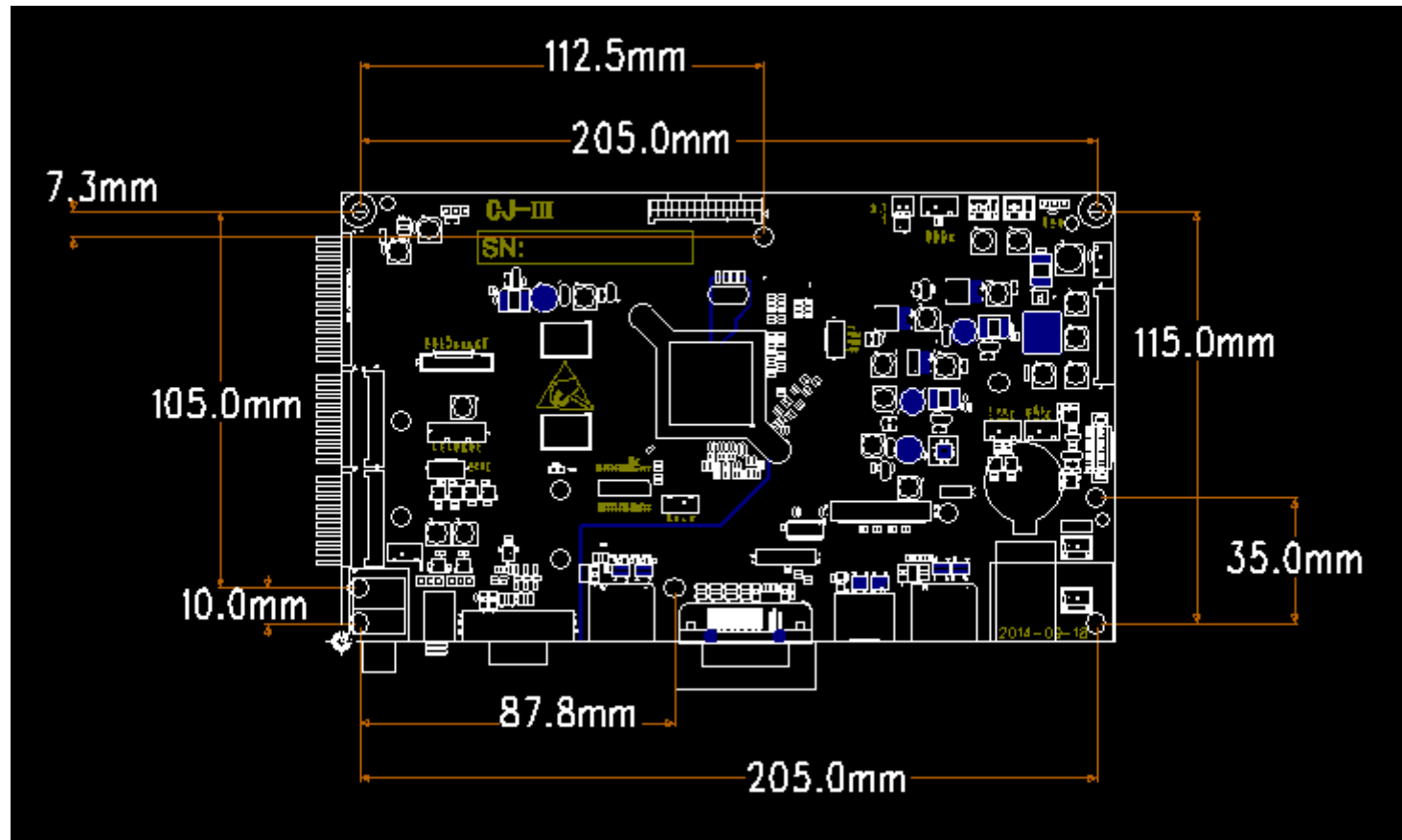


CVBS Board Diagram



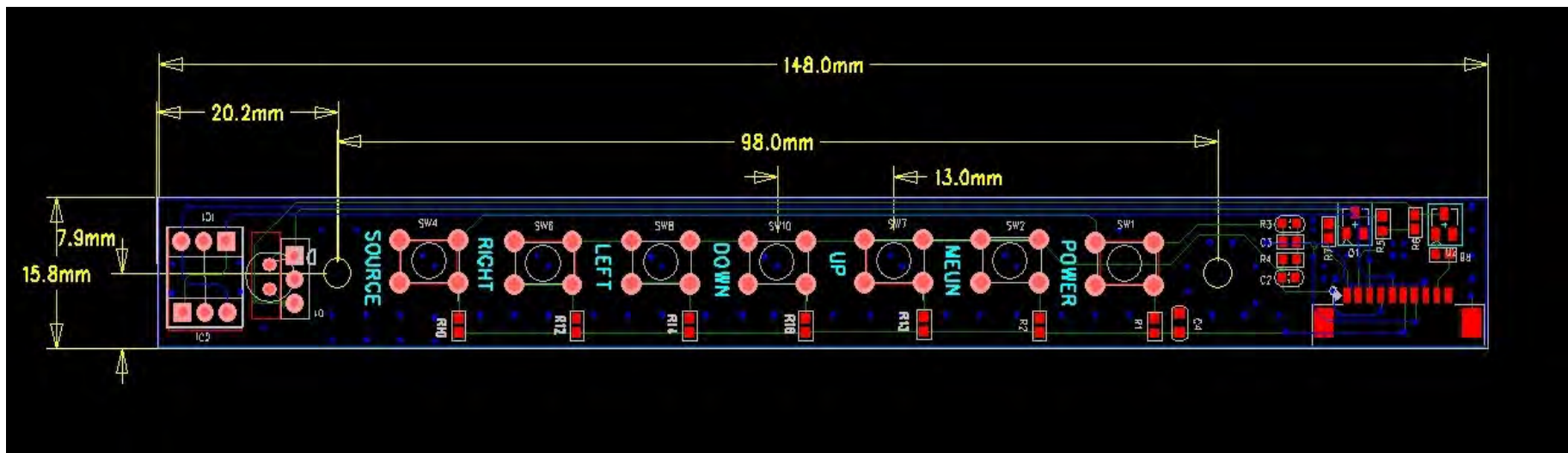
Board Dimension

- Main Board:



Board Dimension

- Keypad



Feature Introduce

- Below sliders introduce the main feature

Feature Introduce

- Resolution :
 - 4K2K QFHD(3840x2160@30Hz) input capture;
 - WQXGA(2560x1600/1440@60Hz) output;
 - 3D FHD(1920x1080) 120Hz Input and output;
- Input Ports:
 - VGA/YPbPr: 205M bandwidth, 10Bits processing with tribo ADCs,
 - DP 1.2: 300M bandwidth, support HDCP 1.2, Audio, 3D, can input e-DP or MyDP; DP1.1a compliant;
 - HDMI 1.4: 300M bandwidth, support HDCP 1.2, HBR Audio, 3D;
 - Dual DVI: 300M bandwidth, support HDCP 1.2, 3D, single DVI speed up to 165M bandwidth;
 - TTL: 24bits multi-format video input port(ITU656, 10bits or 20 bits 4:2:2 etc) , for PD project, TTL use for CVBS1, CVBS2, YPbPr 2 input;;
- Output Ports:
 - DP 1.2 MST or e-DP, can drive DP Panel directly (e.g.: LG LM270WQ1);
 - Quad / Dual channel LVDS transmitter;

Feature Introduce

- Dual Input Video Capture Port:
 - Support flexible Pip, PBP, POP;
- Video Image Processing:
 - TNR, sharpness, ACC, ACM, DCDi, MADi;
 - VWD: Active video window detection & enhancement;
 - Support Gamma, 6 axis color, uniformity compensation, color temperature, overdrive;
- 3D feature support:
- FRC: Frame Rate Conversion;

Feature Introduce

- Audio:
 - 8-CH HBR audio from HDMI or DP receivers;
 - Analog audio line-in for HP, Line-out bypass;
 - 24Bits Audio DAC with mute ramp @44.1KHz, 48KHz, stereo line out/headphone out;
 - SPDIF & I2S Rx Ports: max sampling rate 192KHz;
 - SPDIF Tx port: output sampling rate 192KHz, HD audio;
- On chip microprocessor and OSD
 - Integrate x186 turbo microprocessor with rich function library;
 - Advanced bit-mapped OSD controller;
 - General purpose Input/output (GPIOs);

Feature Introduce

- Temperature Detection:
 - 2 Fans with Speed Control;
 - 2 temperature sensor, one for main chip , another for environment
 - High temperature Alarm and fans speed control function;
- RTC:
 - Regular time power on/off;
 - Regular time load scene settings;
 - User can set Special trigger;

Feature Introduce

- Control interface:
 - Keypad, IR remoter, UART ,DDCCi, RS485;
- EZ-FUN:
 - Upgrade monitor firmware directly by graphic card digital port(DVI, HDMI, DP etc) without any extra debug board, convenience for user upgrade firmware;
- POWER :
 - External Power: 24V DC power supply;
 - Internal Power: Megmeet serial power or others;
 - Backlight control: On/Off, PWM*2, 12V or 24V output to Inverter;
 - Panel VCC: 12V/5V/3.3V;

Source Matrix

- Pip Matrix:

<i>Main Pip</i>	<i>VGA</i>	<i>DVI (Single Link)</i>	<i>DVI (Dual Link)</i>	<i>HDMI 1</i>	<i>HDMI 2</i>	<i>DP</i>	<i>YPbPr</i>	<i>AV1</i>	<i>AV2</i>	<i>YPbPr 2 (External)</i>
<i>VGA</i>										
<i>DVI (Single Link)</i>										
<i>DVI (Dual Link)</i>										
<i>HDMI 1</i>										
<i>HDMI 2</i>										
<i>DP</i>										
<i>YPbPr</i>										
<i>AV1</i>										
<i>AV2</i>										
<i>YPbPr 2 (External)</i>										

ComboPhy0: DP receiver;

ComboPhy1 + 2: DVI receiver and it's dual DVI for this board;

ComboPhy2: HDMI receiver;

Red part means these two ports conflict, will just display one of them;

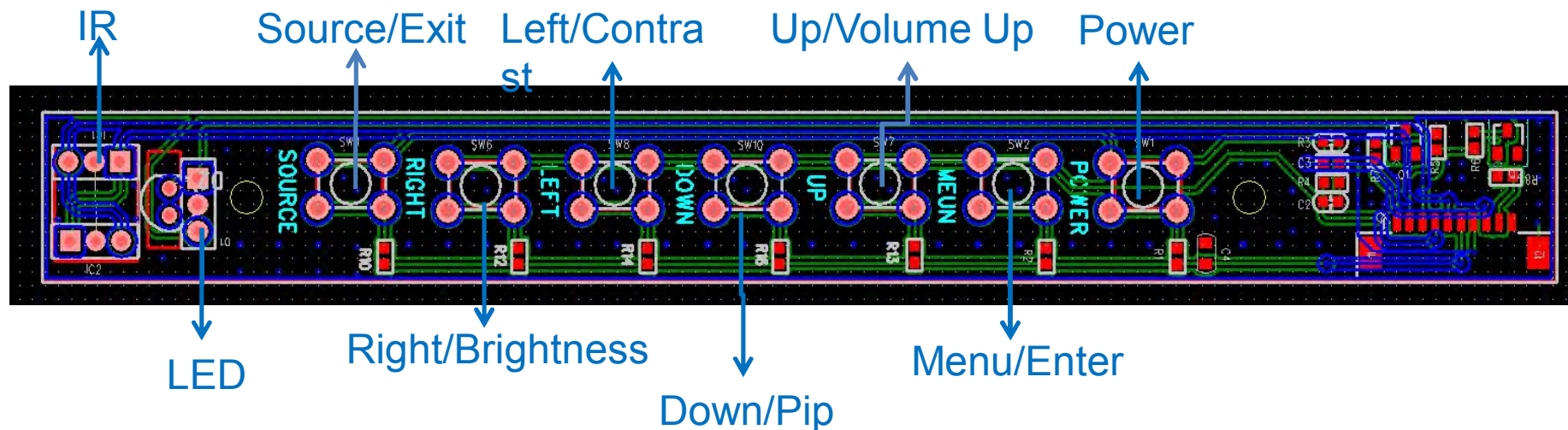
Public Display

- Public Display
 - For Public Display, support up to 3840x2160 Input capture;
 - For public display, DP output use for path of daisy-chain from routing logic;
 - Use RJ45 for RS485 command transmit and receive, command include setup multi-display, menu control, board ID assign, input change etc, all background control pass through by RS485 command.

OSD Introduce

OSD Introduce

- Keypad



Power: Power On/Off;

Menu: Press to show main menu when no OSD, Press to enter when has main OSD;

Up: Go up when has main OSD, Hotkey for adjust volume when no OSD;

Down: Go down when has main OSD, Hotkey for pip control when no OSD;

Left: Go left or decrease value when has main OSD, Hotkey for Contrast adjust;

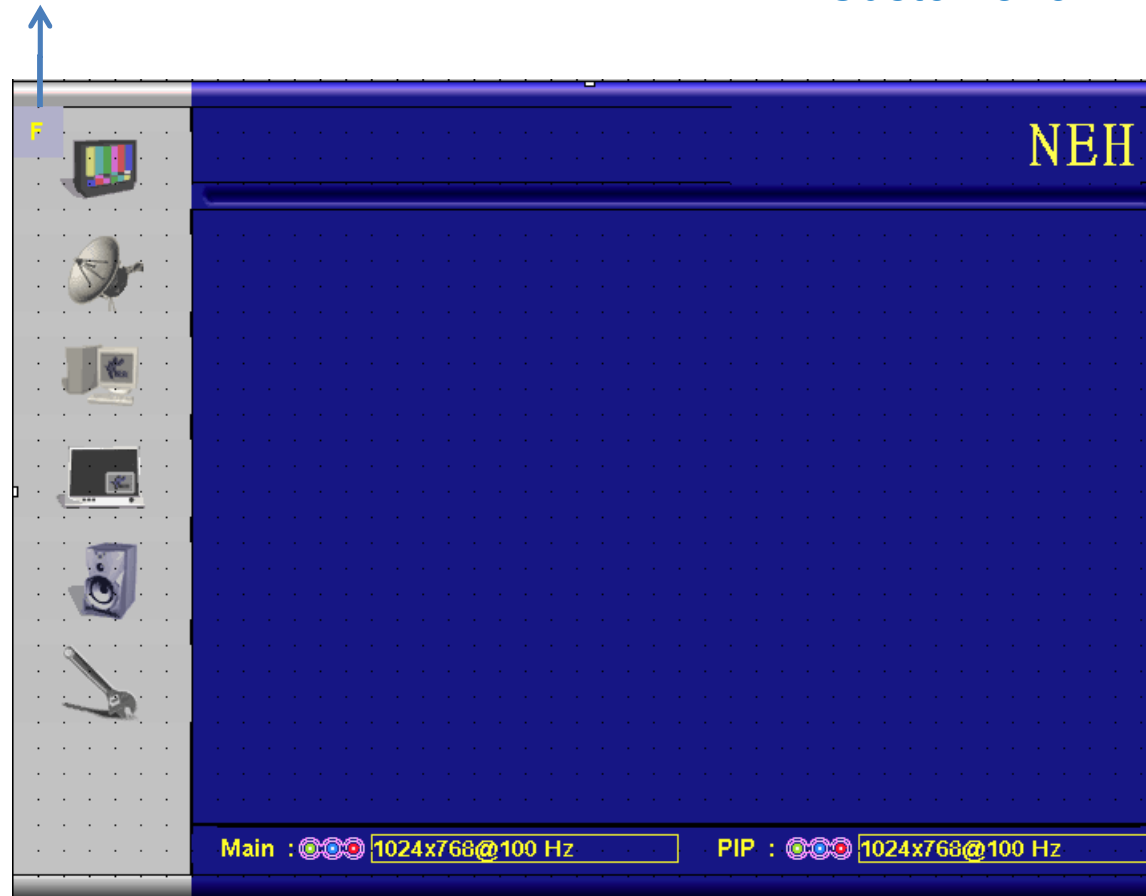
Right: Go right or increase value when has main OSD, Hotkey for Brightness adjust;

Source: Press to show input port list when no OSD, Exit when has main OSD;

OSD Introduce

Factory Mode

Customer or model name

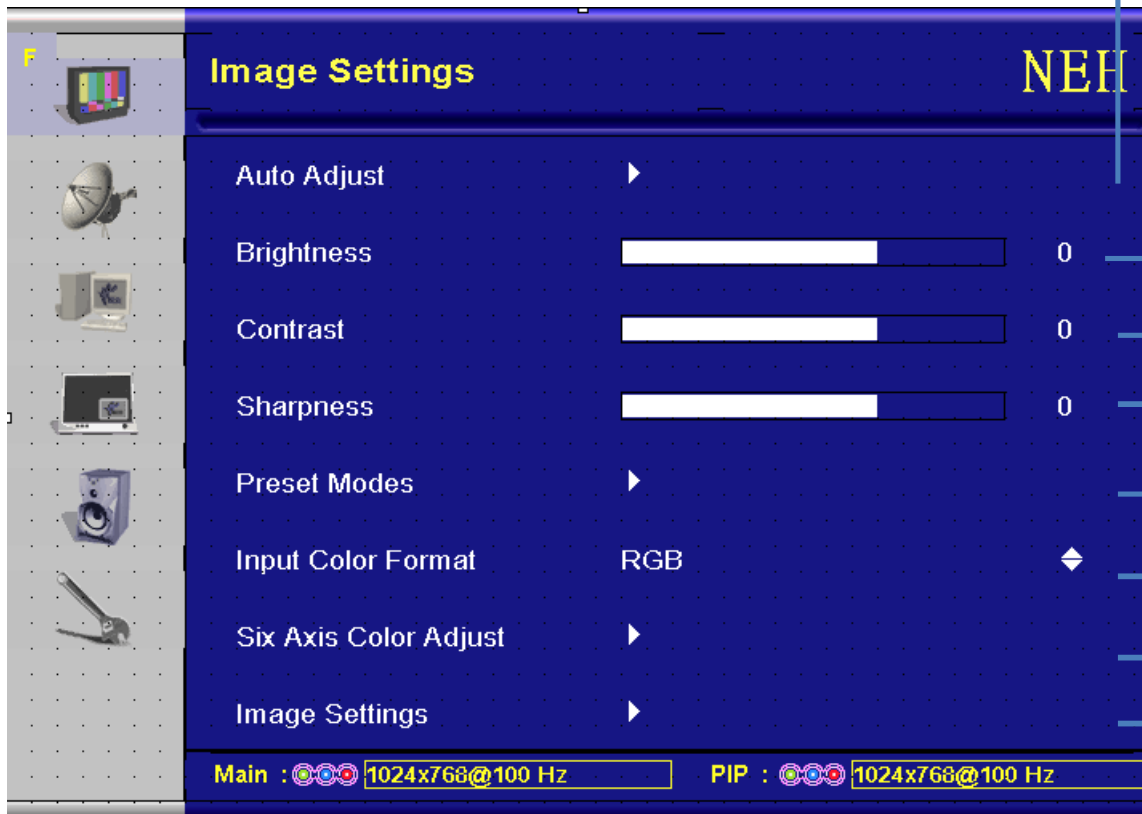


Main Input Information

Pip Input Information

OSD Introduce

- Image Settings



The image shows a screenshot of an OSD (On-Screen Display) menu titled "Image Settings". The menu is displayed on a dark blue background with a grid pattern. On the left side, there is a vertical list of icons representing different input sources: a monitor, a satellite dish, a desktop computer, a laptop, a speaker, and a pair of pliers. The main menu items are listed on the right side of the screen, each with a right-pointing arrow indicating further options. The items are: "Auto Adjust", "Brightness", "Contrast", "Sharpness", "Preset Modes", "Input Color Format", "Six Axis Color Adjust", and "Image Settings". At the bottom of the menu, there are two status bars: "Main : 1024x768@100 Hz" and "PIP : 1024x768@100 Hz".

Annotations on the right side of the image explain the functions of the menu items:

- Auto adjust: only functional for VGA input
- Brightness : Adjust backlight brightness
- Contrast : Adjust Image contrast
- Sharpness : Adjust Image Sharpness
- Preset Mode : setup Color Temperature, Color space, color mode etc;
- Input color format change
- Six Axis color Adjust
- Image setting : Only functional for VGA input, adjust Image H/V position, Clock, Phase;

OSD Introduce

- Input Source



OSD Introduce

- Display Settings



The image shows an OSD (On-Screen Display) menu for a video device. The menu is titled "画面设置" (Picture Settings) and "机种名" (Model Name). It lists several settings: Aspect Ratio (Full Screen), Noise Reduction (关), Gamma (关), and Image Rotation (关). Each setting has a diamond icon next to it. To the right of the menu, there are four arrows pointing to the settings, each with a descriptive text: "Aspect Ratio: change display Aspect ratio to Full screen, 1:1, 16:9 or 4:3 etc;", "Reduce noise from input;", "Gamma", and "Image Rotation;". At the bottom of the menu, there is a status bar showing "Main : 1024x768@100 Hz" and "PIP : 1024x768@100 Hz".

Setting	Value
宽高比	Full Screen
降噪	关
Gamma	关
Image Rotation	关

Aspect Ratio: change display Aspect ratio to Full screen, 1:1, 16:9 or 4:3 etc;

Reduce noise from input;

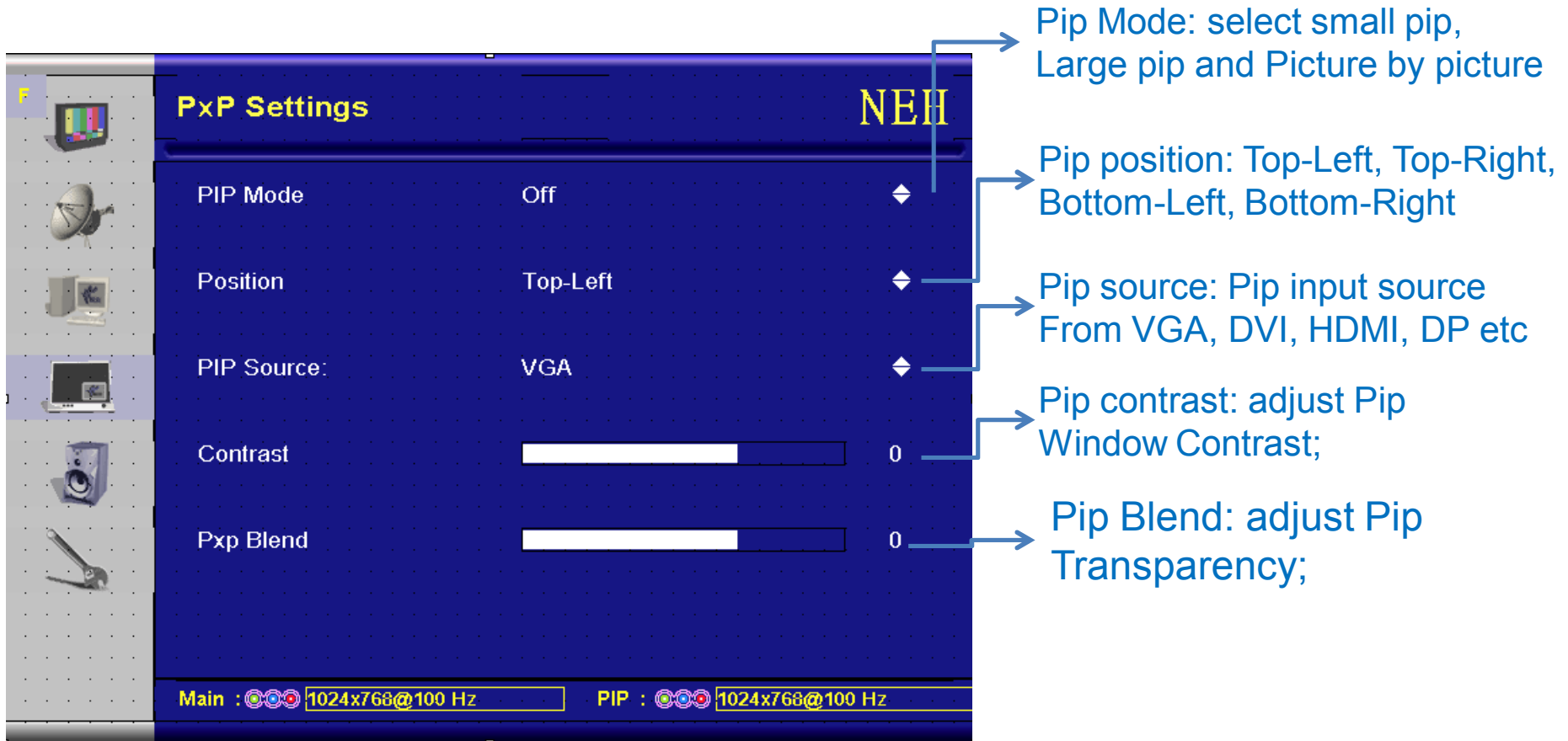
Gamma

Image Rotation;

Main : 1024x768@100 Hz PIP : 1024x768@100 Hz

OSD Introduce

- *Pxp setting(Picture in Picture)*



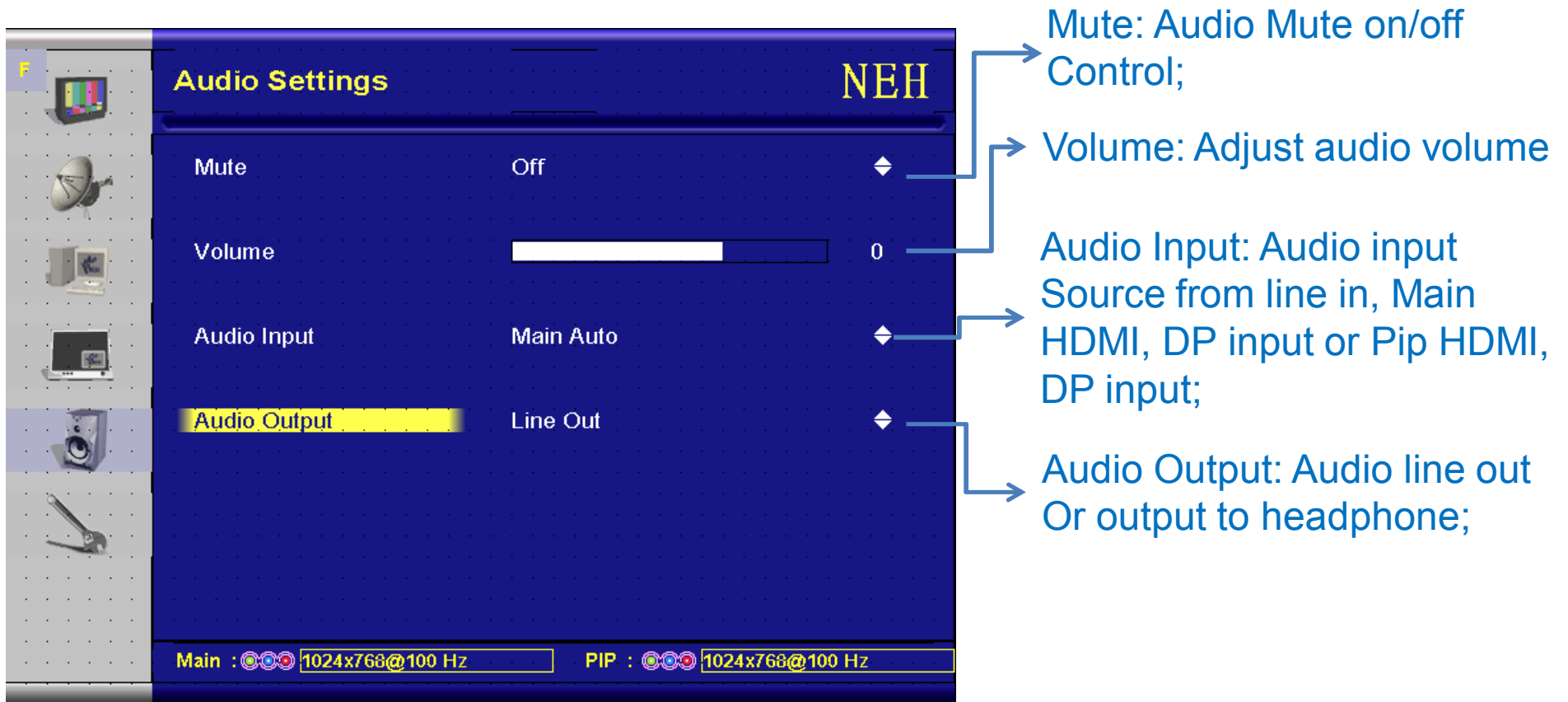
The screenshot shows the 'PXP Settings' menu on a dark blue background with a dotted grid. On the left is a vertical sidebar with icons for various settings: a monitor, a satellite dish, a computer tower, a laptop, a speaker, and a wrench. The main menu items are: 'PIP Mode' (Off), 'Position' (Top-Left), 'PIP Source:' (VGA), 'Contrast' (a slider bar), and 'Pxp Blend' (a slider bar). At the bottom, it displays 'Main : 1024x768@100 Hz' and 'PIP : 1024x768@100 Hz'. Annotations with arrows point to specific settings: 'PIP Mode' is annotated with 'Pip Mode: select small pip, Large pip and Picture by picture'; 'Position' is annotated with 'Pip position: Top-Left, Top-Right, Bottom-Left, Bottom-Right'; 'PIP Source:' is annotated with 'Pip source: Pip input source From VGA, DVI, HDMI, DP etc'; 'Contrast' is annotated with 'Pip contrast: adjust Pip Window Contrast;'; and 'Pxp Blend' is annotated with 'Pip Blend: adjust Pip Transparency;'. The text 'NEH' is visible in the top right corner of the menu area.

Setting	Value	Description
PIP Mode	Off	Pip Mode: select small pip, Large pip and Picture by picture
Position	Top-Left	Pip position: Top-Left, Top-Right, Bottom-Left, Bottom-Right
PIP Source:	VGA	Pip source: Pip input source From VGA, DVI, HDMI, DP etc
Contrast	0	Pip contrast: adjust Pip Window Contrast;
Pxp Blend	0	Pip Blend: adjust Pip Transparency;

Main : 1024x768@100 Hz PIP : 1024x768@100 Hz

OSD Introduce

- Audio setting



The screenshot shows the 'Audio Settings' menu on a dark blue background with a grid pattern. The menu is titled 'Audio Settings' in yellow at the top left and 'NEH' in yellow at the top right. On the left side, there is a vertical list of icons: a monitor, a satellite dish, a computer tower, a laptop, a speaker (highlighted), and a microphone. The settings are as follows:

Setting	Value
Mute	Off
Volume	0
Audio Input	Main Auto
Audio Output	Line Out

At the bottom, there are two status bars: 'Main : 1024x768@100 Hz' and 'PIP : 1024x768@100 Hz'. Annotations with arrows point to specific settings:

- Mute: Audio Mute on/off Control;
- Volume: Adjust audio volume
- Audio Input: Audio input Source from line in, Main HDMI, DP input or Pip HDMI, DP input;
- Audio Output: Audio line out Or output to headphone;

OSD Introduce

- Setup

The screenshot shows the OSD Setup menu with the following settings:

Setting	Value
Language	English
Horizontal Position	0
Vertical Position	0
Menu Timer	0
Menu Transparency	0
Menu Lock	Unlock
DP Switch	DP 1.1a
EZ FUN	
Factory Reset	No

At the bottom, the status bar shows: Main : 1024x768@100 Hz PIP : 1024x768@100 Hz

Annotations on the right side of the screen:

- Language: OSD language Settings;
- Horizontal Position: setup menu Horizontal position;
- Vertical Position: setup menu Vertical Position;
- Menu Timer: setup how long Menu will disappear;
- Menu Transparency: adjust menu transparency;
- Menu Lock: Lock or UnLock OSD menu;
- DP Switch: Set DP input to DP1.1a or DP1.2;
- EZ FUN: Smart ISP allow user Upgrade monitor software by digital input(DVI, HDMI, DP) Directly without any extra Debug Board;
- Factory Reset: Reset all settings to factory default;

OSD Introduce

- Public Display



The image shows an OSD menu titled "拼接设置" (Mosaic Settings) and "机种名" (Model Name). The menu is divided into two columns. The left column lists settings, and the right column shows their current values. A vertical sidebar on the left contains icons for various settings, with the "Public Display" icon (a monitor) highlighted. Arrows point from the right column values to their corresponding English descriptions.


拼接设置	机种名
当前板号:	0
拼接控制	关
拼接通道	主通道
主横向数量	0
主纵向数量	0
主板号位置	0
主像素屏蔽	▶

Board ID
Public Display ON/OFF
PD Channel: Which channel use for PD setup;
Main X Number
Main Y Number
Main Display Location
Main Pixel blank setting

Main : 1024x768@100 Hz PIP : 1024x768@100 Hz

OSD Introduce

- Pixel Blank Setting



The image shows an OSD menu titled "拼接设置" (Mosaic Settings) with a sub-header "機種名" (Model Name). The menu lists several settings for pixel blanking, each with a value of 0 and a diamond-shaped icon for adjustment. The settings are: 主像素屏蔽 (Main Pixel Masking), Pixel Blank Top, Pixel Blank Bottom, Pixel Blank Left, and Pixel Blank Right. The bottom of the screen displays the main display resolution and refresh rate: "Main : 1024x768@100 Hz" and the PIP resolution and refresh rate: "PIP : 1024x768@100 Hz".

Setting	Value	Icon
主像素屏蔽	关	◆
Pixel Blank Top	0	◆
Pixel Blank Bottom	0	◆
Pixel Blank Left	0	◆
Pixel Blank Right	0	◆

Pixel Blank ON /OFF;

Top pixel blank setting;

Bottom pixel blank setting ;

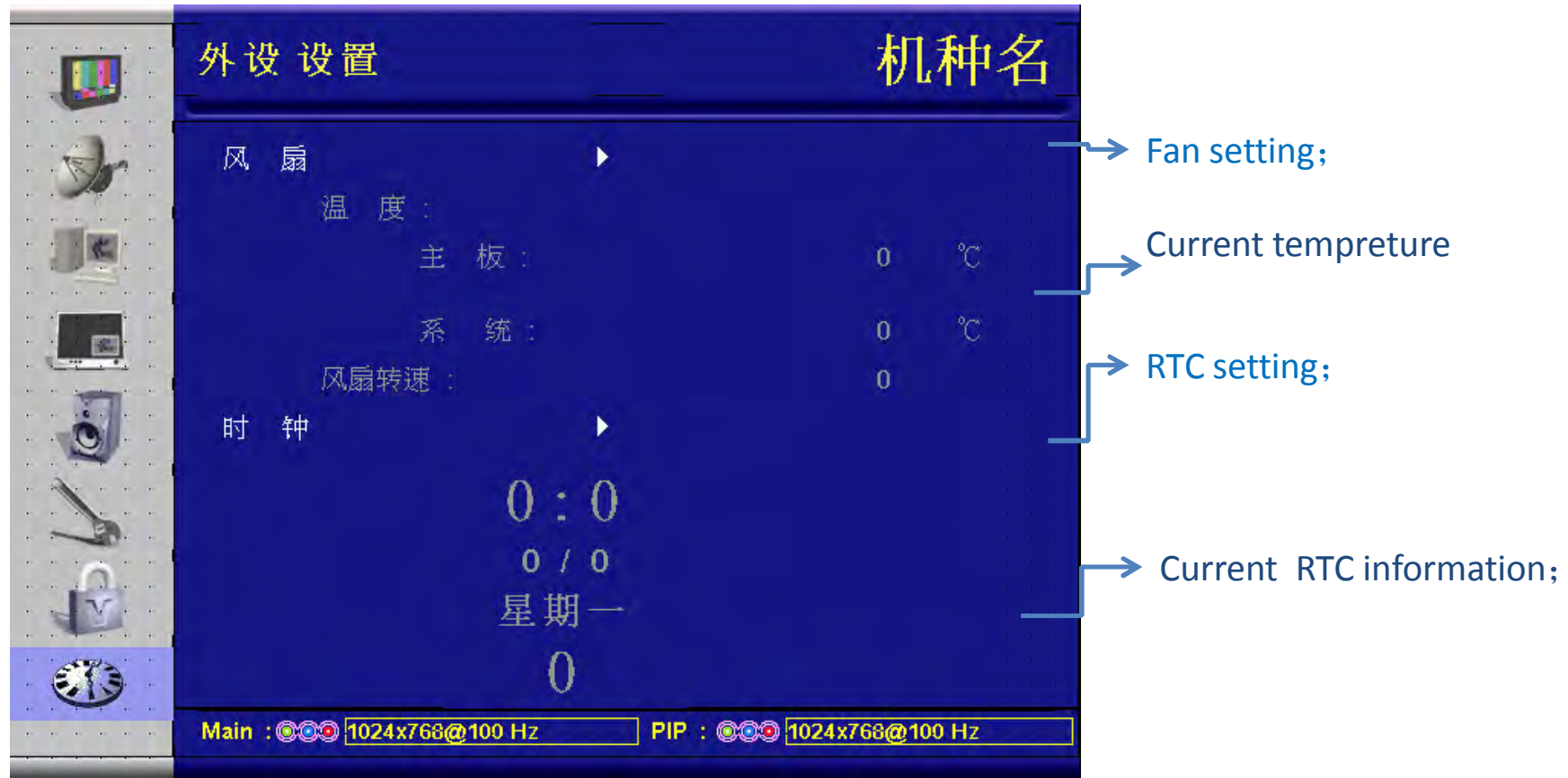
Left pixel blank setting ;

Right pixel blank setting ;

Main : 1024x768@100 Hz PIP : 1024x768@100 Hz

OSD Introduce

- External Setting



OSD Introduce

- Fan setting

The screenshot shows the '外设设置' (Peripheral Settings) menu with the '风扇' (Fan) option selected. The '机种名' (Model Name) field is set to '默认设定' (Default Setting). The '温度设定' (Temperature Setting) section shows five temperature points, each with a slider and a percentage value. The '风扇转速' (Fan Speed) section shows five speed levels, each with a slider and a percentage value. The '主板' (Motherboard) and '系统' (System) temperatures are both 0°C. The status bar at the bottom shows 'Main : 1024x768@100 Hz' and 'PIP : 1024x768@100 Hz'.

外设设置

机种名

风扇 默认设定

温度设定

风扇转速 :

0 °C 0 %

0 °C 0 %

0 °C 0 %

0 °C 0 %

0 °C 0 %

主板 : 0 °C

系统 : 0 °C

Main : 1024x768@100 Hz PIP : 1024x768@100 Hz

Fan setting: default Setting;

Lowest Speed setting;

Lower Speed setting;

Normal Speed setting;

Higher Speed setting;

Highest Speed setting;

Current temperature

OSD Introduce

- RTC



OSD Introduce

- Source information menu



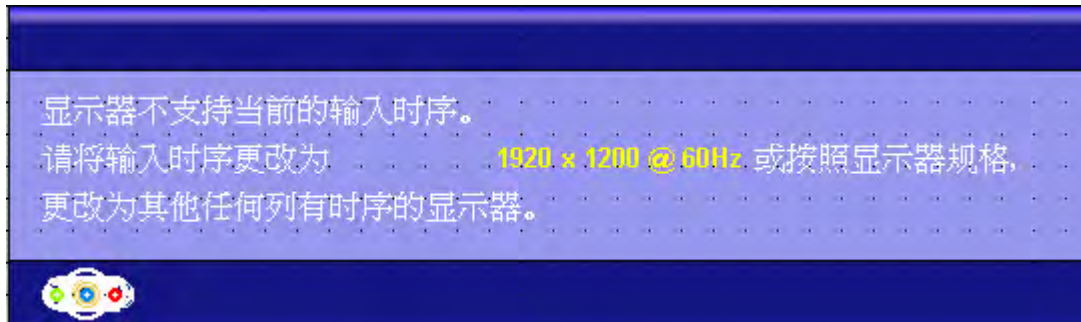
OSD Introduce

- Information menu– No cable menu.



OSD Introduce

- Information menu – over clocking menu



OSD Introduce

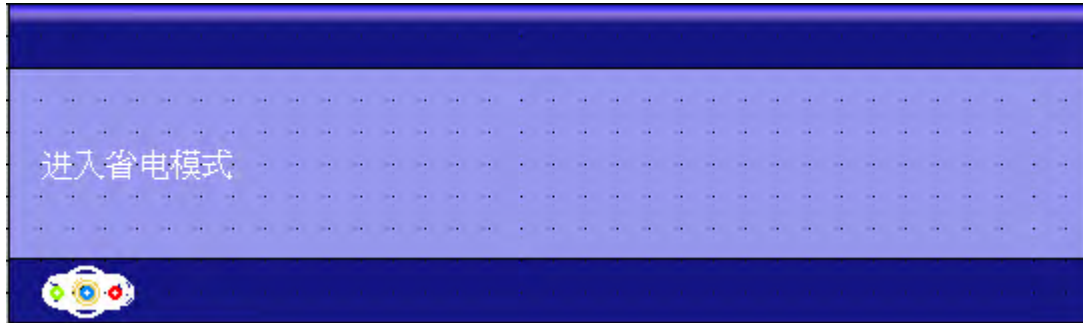
- Information menu – Auto Adjust



This information will be displayed when the auto adjust function is performance

OSD Introduce

- Information Menu – No signal



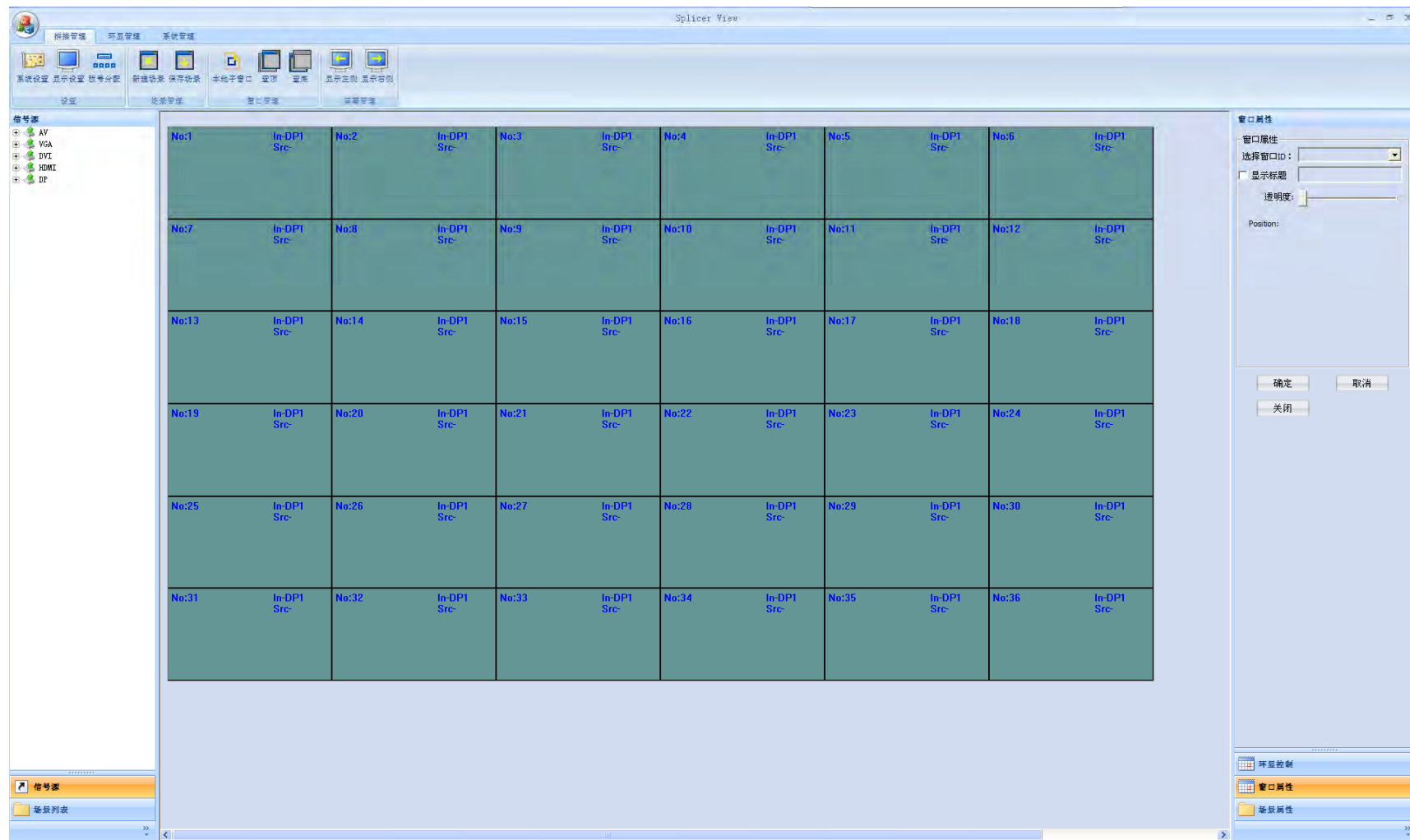
This information will be displayed in 15s when the signal lost

Factory Menu

Panel						
Exit						
Burnin Mode	Off					
Auto Color	Finish					
Color Temperature:						
10000K	R	0	G	0	B	0
9300K	R	0	G	0	B	0
7500K	R	0	G	0	B	0
7200K	R	0	G	0	B	0
5500K	R	0	G	0	B	0
5700K	R	0	G	0	B	0
5000K	R	0	G	0	B	0
sRGB	R	0	G	0	B	0
AdobeRGB	R	0	G	0	B	0
BriBase	Standard		0	Paper		0
	sRGB		0	AdobeRGB		0
Offset 1	R	0	G	0	B	0
Offset 2	R	0	G	0	B	0
Gain	R	0	G	0	B	0
EDID WP	Off					
Back Light On Time	0	H	0	M		
Panel SSC	Amp.		0	Freq.		0
DCR Test	Off					
ISP Smart						
Reset Timer						
UARTSelect	UART0					
Factory Reset						
DP Speed	1.62 Gbps			1 Lane		
ColorSpace	No InfoFrame		AudioPacket		Exist	
Serial No.						

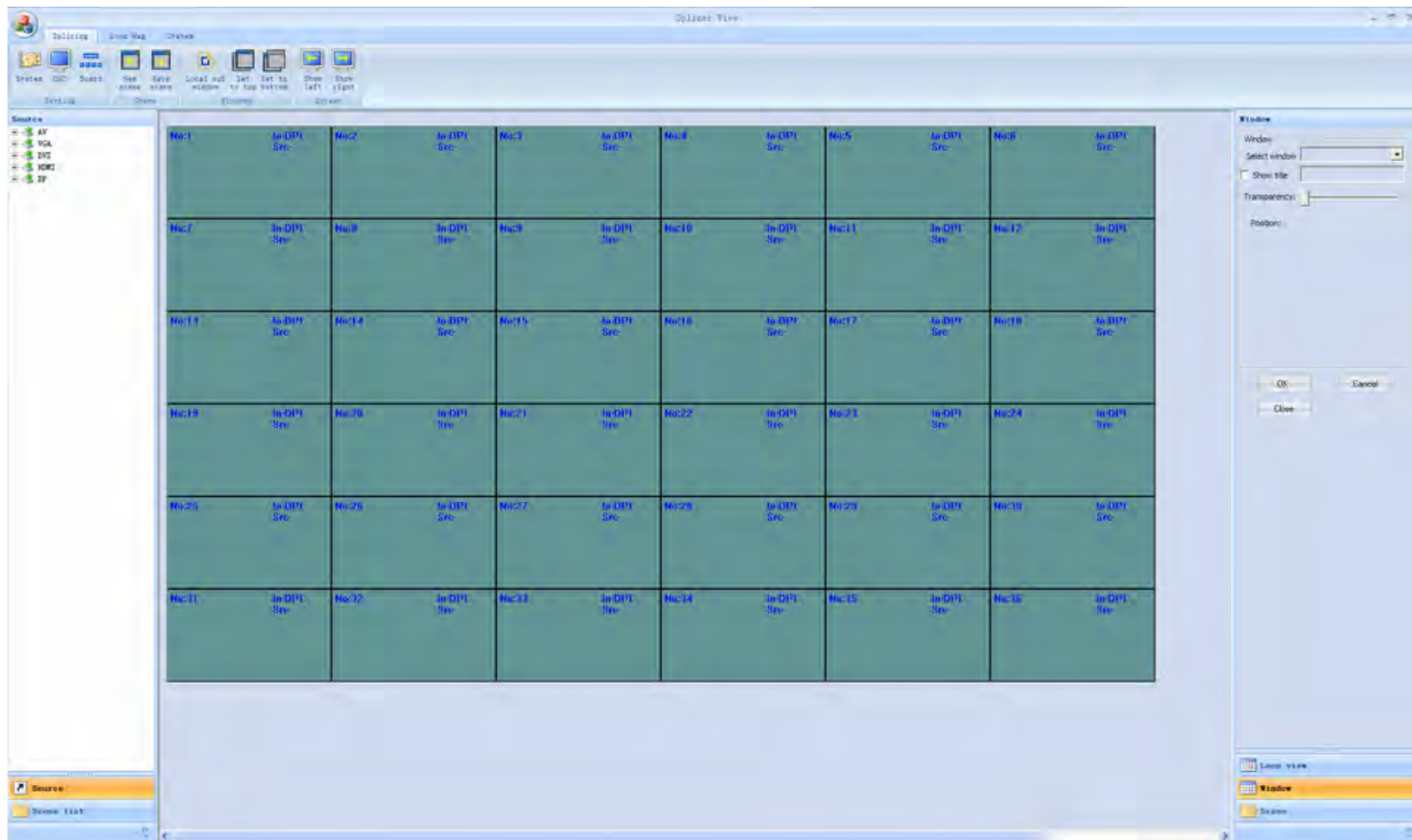
Public Display Background control

- Chinese Version



Public Display Background control

- English version



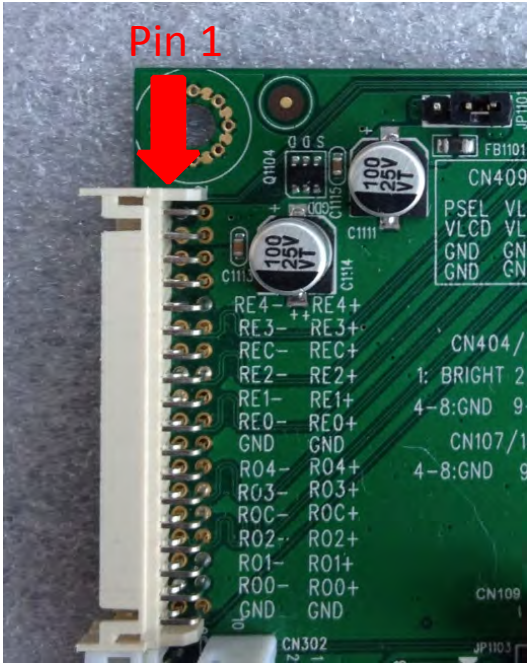
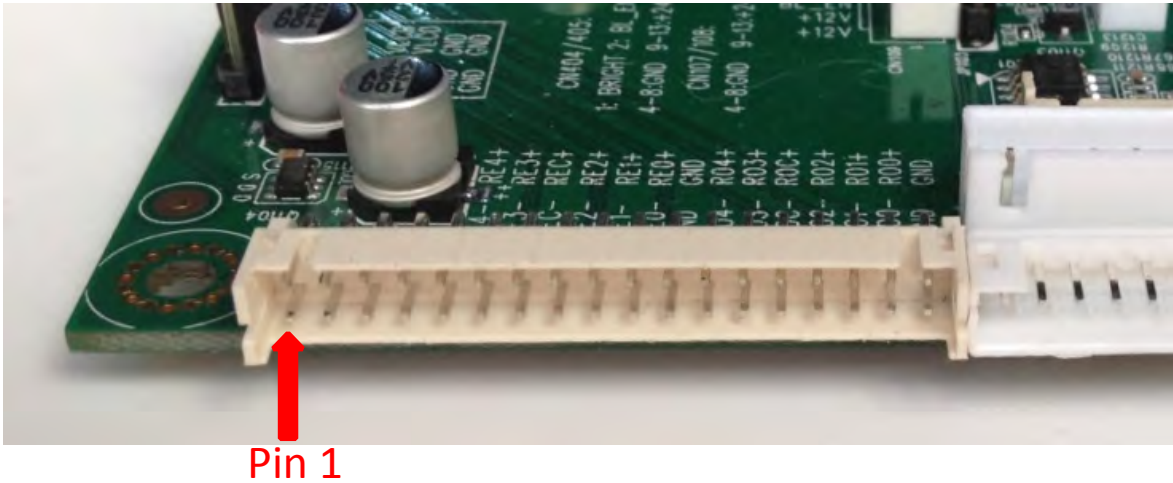
Public Display Background control

- Background control software:
 - Use for project configure, matrix switch control, communicate protocol configure;
 - Setup public display, or separate to individual display;
 - Multi board or single board control, input source change, menu control, board ID assignment;
 - Scenario setup, configure and save;
 - Setup multi channel display on public display;
 - System management include user authorization;
 - RTC control and Temperature detection

Board Pin Out

Below sliders show the detail pin out

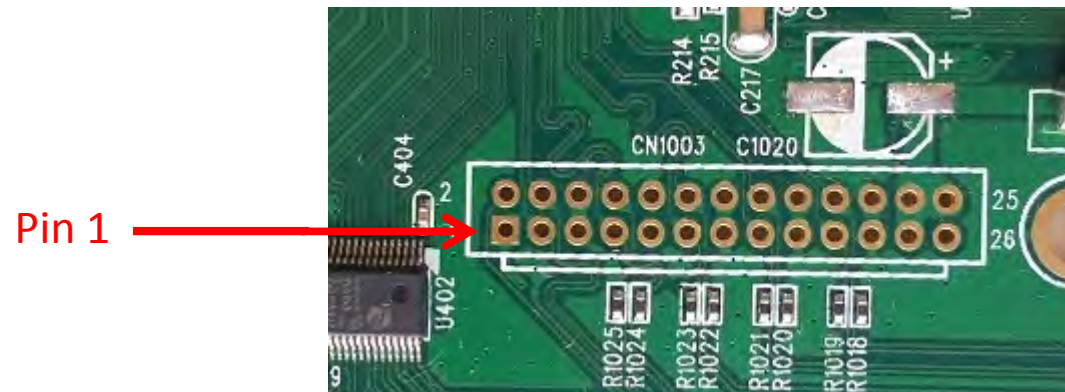
LVDS Pin out



CN409																		
Pin Define	VCC	VCC	GND	GND	RXE4+	RXE3+	RXEC+	RXE2+	RXE1+	RXE0+	GND	RX04+	RX03+	RXOC+	RX02+	RX01+	RX00+	GND
Pin Number	36	34	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2
Pin Number	35	33	31	29	27	25	23	21	19	17	15	13	11	9	7	5	3	1
Pin Define	Panel Sel	VCC	GND	GND	RXE4-	RXE3-	RXEC-	RXE2-	RXE1-	RXE0-	GND	RX04-	RX03-	RXOC-	RX02-	RX01-	RX00-	GND

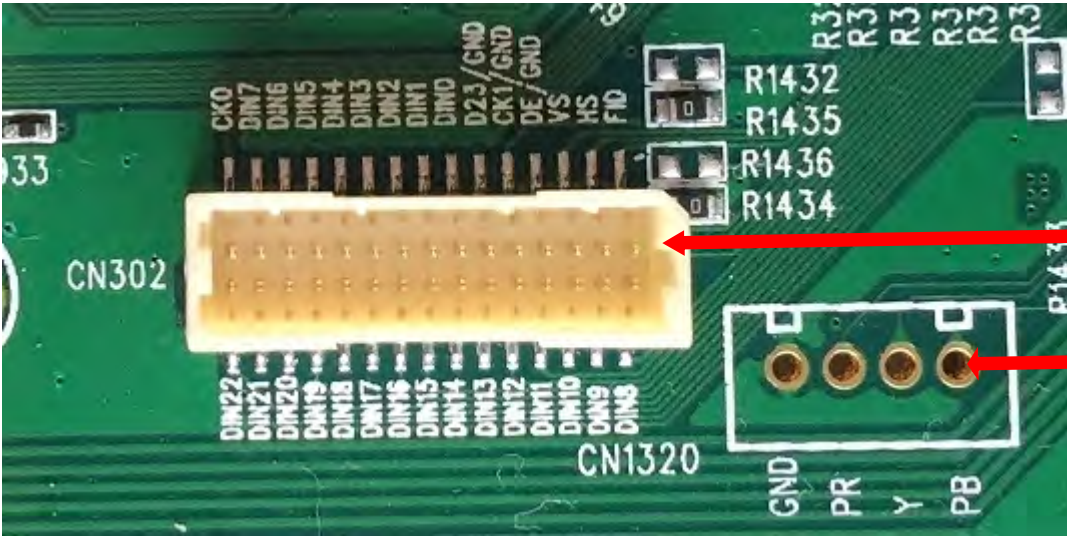
VCC	Panel VCC output, 5V or 12V select by JP101;
Panel Sel	GPIO control for panel, e. g: 10Bits or 8Bits select;

eDP Pin out



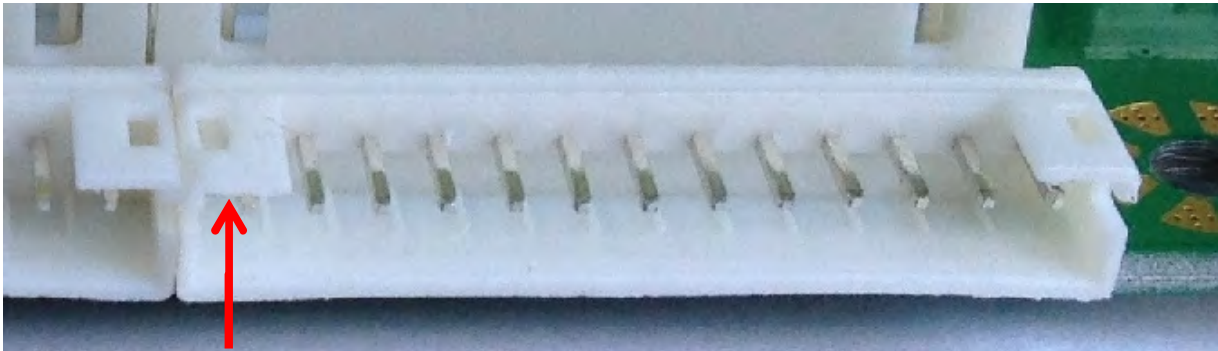
CN1003													
Pin Define	Lane0N	GND	Lane1N	Lane2P	GND	Lane3N	AUX_P	GND	GND	GND	GND	GND	VCC
Pin Number	2	4	6	8	10	12	14	16	18	20	22	24	26
Pin Number	1	3	5	7	9	11	13	15	17	19	21	23	25
Pin Define	Lane0P	Lane1P	GND	Lane2N	Lane3P	GND	AUX_N	GND	HPD	3.3V I/O	GND	GND	VCC

TTL Input Pin out



CN1302															
Pin Define	PB	Y	PR	GND											
Pin Number	1	2	3	4											
CN302															
Pin Define	FID	HS	VS	DE/GND	CK1/GND	D23/GND	DIN0	DIN1	DIN_2	DIN_3	DIN_4	DIN_5	DIN_6	DIN_7	CK0
Pin Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Pin Number	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Pin Define	DIN_8	DIN_9	DIN_10	DIN_11	DIN_12	DIN_13	DIN_14	DIN_15	DIN_16	DIN_17	DIN_18	DIN_19	DIN_20	DIN_21	DIN_22

Backlight Control

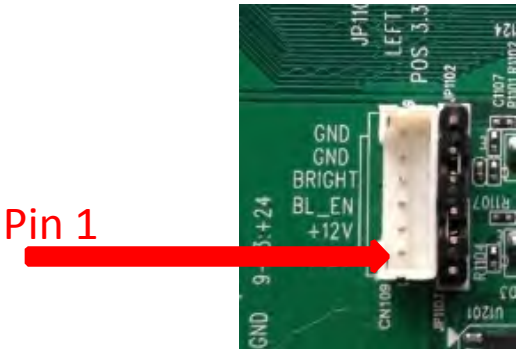


Pin 1

CN1315													
Pin Number	1	2	3	4	5	6	7	8	9	10	11	12	13
Pin Define	PWM/ADJ	BL EN	NC	GND	GND	GND	GND	GND	24V	24V	24V	24V	24V

CN1317													
Pin Number	1	2	3	4	5	6	7	8	9	10	11	12	13
Pin Define	PWM/ADJ	BL EN	NC	GND	GND	GND	GND	GND	24V	24V	24V	24V	24V

CN1101						
Pin Number	1	2	3	4	5	6
Pin Define	12V	12V	BL EN	PWM	GND	GND



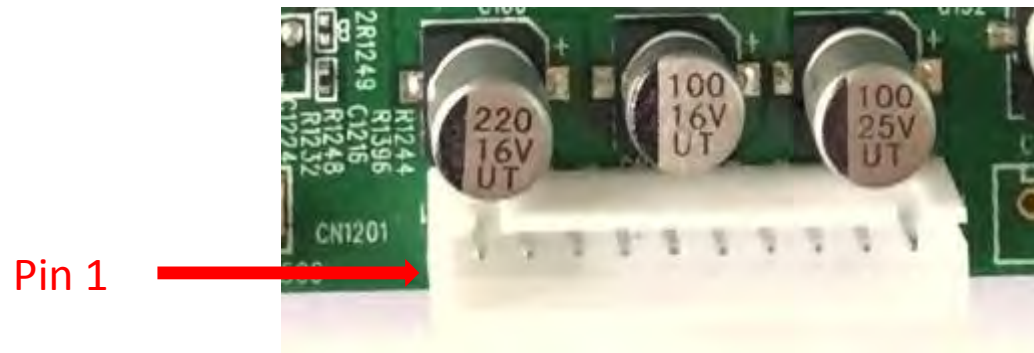
Pin 1

Panel power option



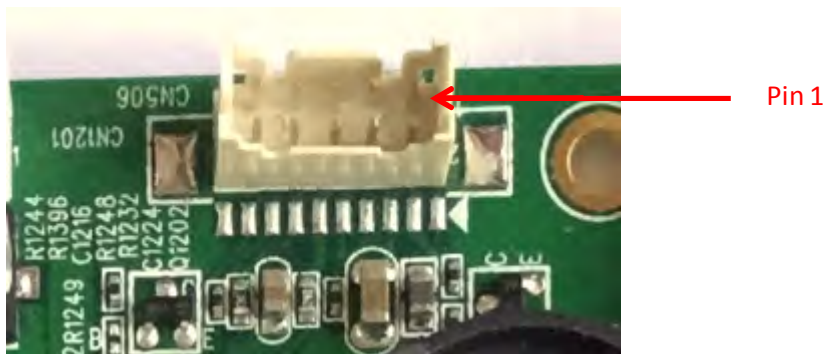
JP1101 Pin 1: 5V;
JP1101 Pin 2: Panel VCC;
JP1101 Pin 3: 12V;
PanelVCC 12V: short 2&3;
PanelVCC 5V: short 1&2;

Internal Power



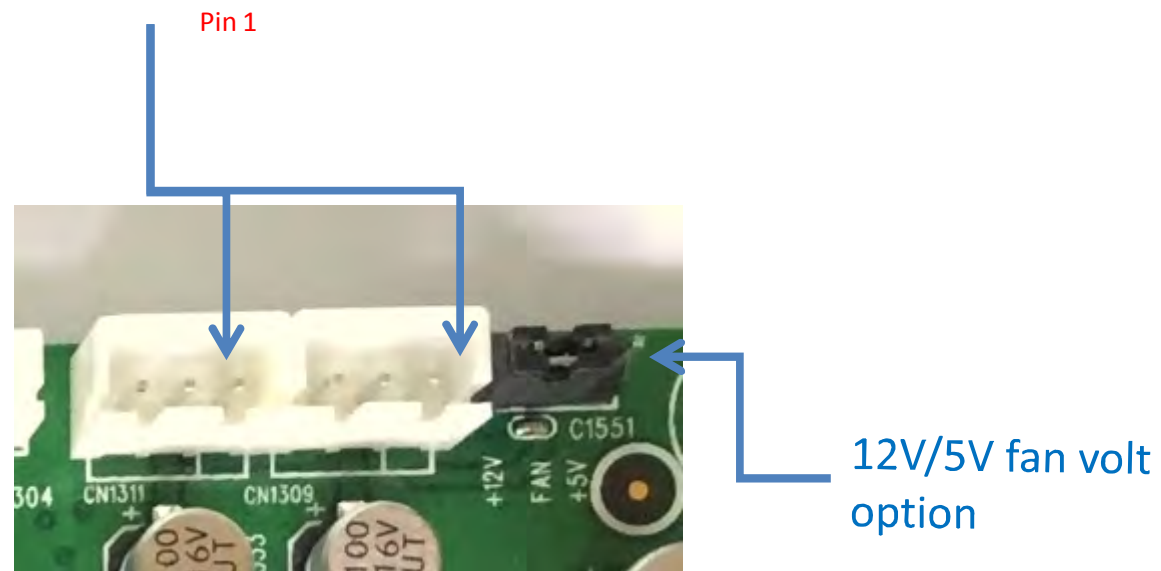
CN104										
Pin Number	1	2	3	4	5	6	7	8	9	10
Pin Define	PS-ON	GND	GND	+5V_ON	+5V	+5V	GND	GND	+12_ON	+12_ON

Keypad



CN505/CN506										
Pin Number	1	2	3	4	5	6	7	8	9	10
Pin Define	LED_A	3.3V_LPM	3.3V_IR	GPADC_AIN1	IR_IN	ADC_VREF	GND	GPADC_AIN0	LED_G	GND

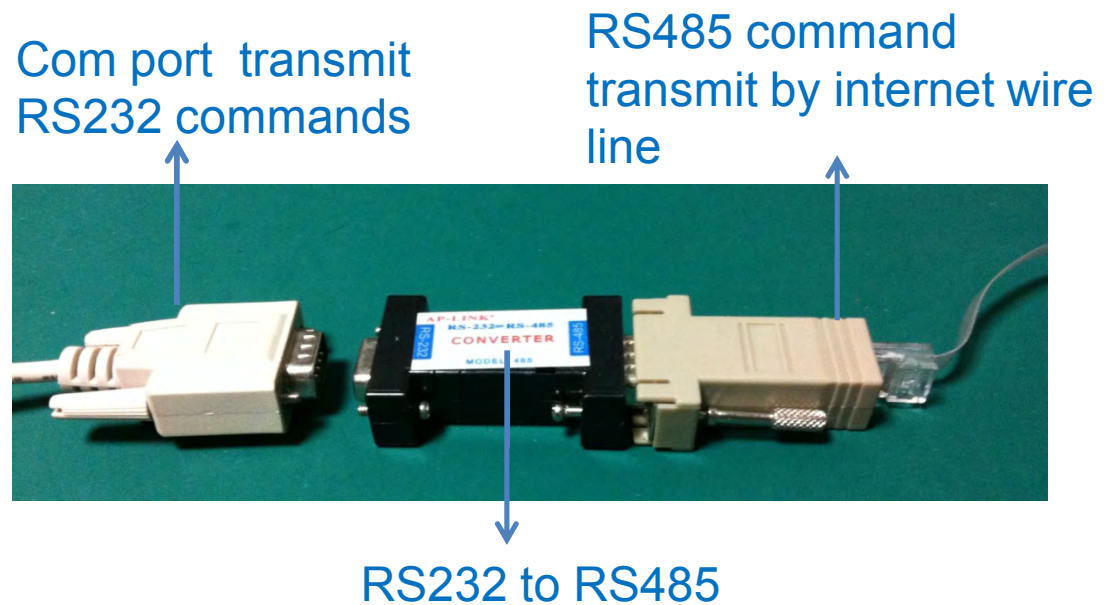
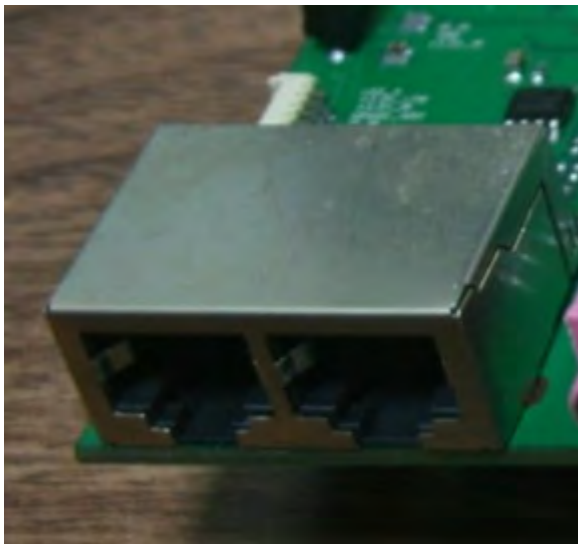
Fan interface



<i>CN1311/1309</i>			
<i>Pin Number</i>	<i>1</i>	<i>2</i>	<i>3</i>
<i>Pin Define</i>	<i>GND</i>	<i>FAN+</i>	<i>SPD</i>

RJ45 and RS485

- RJ45: use normal internet wire line to received RS485 command



CN2								
Pin Number	1	2	3	4	5	6	7	8
Pin Define	RS485+	RS485-	GND	NC	GND	VCC	NC	NC

Thanks!
